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A. C. TRUE, Director

In Cooperation with the Bureau of Animal Industry
A. D. MELVIN, Chief



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ILLUSTRATED LECTURE ON HOW TO
MAKE GOOD FARM BUTTER

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CONTENTS

	Page		Page
Introduction	1	Comparison of Butter Made by the Two	
Butter Making by the Old Method	2	Methods	7
The Correct Way of Making Butter	3	Appendix	9



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**SYLLABUS 19—ILLUSTRATED LECTURE ON HOW TO
MAKE GOOD FARM BUTTER.¹**

By J. H. McCLAIN,

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Animal Industry.*

INTRODUCTION.

The commodity known as farm butter, though generally made in small quantities and only the surplus sold, has far more economic importance than is commonly supposed. To a large extent farm butter is bartered—swapped for groceries or other articles of merchandise—the articles received for it going to the support of the farm home. This item, together with the fact that a large part of what is not bartered, but sold for cash, constitutes the pin money of the farm women, makes it of considerable importance. View.

The average price of farm butter is very low, probably ranging from 15 to 20 cents. This to a very large extent is attributable to its poor quality. Much farm butter is of such quality that it has to be put through a special process before it is offered for sale to the consumer. The method of handling milk and cream and the way the butter is made determine its quality.

BUTTER MAKING BY THE OLD METHOD.

THE UTENSILS.

The setting of milk in shallow, uncovered pans exposed to dust, flies, and the odors of the pantry or kitchen, until it is hard clabber or until the cream which rises is so thick and leathery that it can be pulled off the top in a solid sheet,

¹ This syllabus has been prepared by direct cooperation between J. H. McClain, Dairy Division, Bureau of Animal Industry, and J. M. Stedman, Farmers' Institute Specialist, of the States Relations Service, and is designed to aid farmers' institutes and other extension lecturers in presenting the subject before popular audiences in the Southern States only. The syllabus is illustrated with 51 lantern slides. The numbers in the margins of the pages refer to the lantern slides as listed in the Appendix

View. causes many bad flavors in the butter. On farms it is common
 1 to set milk in this way and then to churn it in a heavy earthen-
 ware jar with a wooden dasher and stick. Earthenware ves-
 sels, unless perfectly glazed, should never be used in handling
 milk, for they are porous and often contain blisters or air bub-
 bles; these absorb milk, which sours and decays, causing the
 characteristic smell of country churns. It is very hard to
 clean such utensils properly, and, furthermore, churns of this
 material are heavy to handle, which is quite a consideration.

THE CHURNING.

It is customary to scald the dasher and churn before
 2 beginning to churn. The hot water is shaken around in
 3 the jar and then poured into the waste bucket or out of
 4 the window. The cream is then broken away from the sides
 5 of the pans, frequently with the finger, and probably that
 adhering to the finger is removed by licking. The entire
 6 content of the pans is then poured into the churn, guided by
 7 the fingers on the sides, after which all cream sticking to the
 8 pan is scraped off. Since wielding the churn dasher is hard
 work, the housewife wants it over just as quickly as possible.
 9 She frequently raises the stick to see whether very fine gran-
 ules of butter are beginning to appear, with the milk trick-
 10 ling in a zigzag manner among them. She may also run a
 finger over the stick to aid the observation. If the granules
 11 do not appear in a few minutes, or if the milk appears foamy,
 hot water is poured into the churn to hasten the process of
 churning. This heats the milk and after a few minutes the
 butter comes and stands on top of the milk like soft pound-
 12 cake batter. The removing of this butter from the churn is
 13 very conveniently done with the hand. Cold water is then
 14 poured over the butter to harden it, and when this water is
 15 poured off it carries away some of the buttermilk. Working
 with a paddle is then resorted to in order to remove more
 16 buttermilk, after which a pinch of salt, large or small, de-
 17 pending on the quantity of butter, is sprinkled on, and the
 18 butter is shaped into a circular flat mass on a plate. Cuts
 and dashes with the paddle across the top of the butter break
 the plainness of the view and add variety—always desirable
 in the case of butter made in this way. If the butter is for
 sale and extra pains are taken, it is wrapped in a cloth or rag
 19 and set aside, while the important task of washing the churn-
 ing utensils is begun. The trusty dishrag and the bar of soap
 are necessary to clean even the churn properly. This old way
 of working butter is crude and insanitary; it results in butter
 of a poor quality, and is laborious.

THE CORRECT WAY OF MAKING BUTTER.

THE UTENSILS AND PREPARATION FOR CHURNING.

The correct way of making butter is not complicated. To begin with, merely the cream instead of the entire milk is churned, the cream being separated either by gravity or by means of a centrifugal separator, the latter being preferable and more economical, though the first cost may seem high. Convenient vessels for handling cream are desirable and inexpensive. The shotgun can, which can be obtained from hardware stores or mail-order houses, is one of the best receptacles for containing cream, being easily handled, covered, and washed. Cream from separate milkings should be cooled to as low a temperature as possible (50° F. or below) and kept at that temperature in a clean, well-ventilated place until 12 to 18 hours before churning, when the different batches should be mixed, thoroughly stirred, and brought to a temperature of 70° F. by placing the can in a bucket of warm water. During the rise of temperature frequent stirring is necessary. The temperature should always be determined with a dairy thermometer, which can be bought for 15 or 25 cents from local hardware or drug stores, or from mail-order houses. The cream should stand at 70° F. for about 12 to 18 hours in a clean place free from odors. By the end of this time it will have taken on a velvety, glossy appearance and acquired a pleasant, clean, mildly sour taste, which indicates that it is ready for churning. This is called the ripening process. If possible, the cream should be stirred two or three times during the ripening process.

View.

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TEMPERATURE OF THE CREAM.

The first step in churning is to bring the temperature of the cream to about 65° F. (or to such a temperature as to complete the operation of churning within 25 or 30 minutes). This is done by placing the can in a bucket of cold water and stirring frequently. If the cream should be too cold, place the can in a bucket of warm water. Ascertain the temperature with a thermometer. After the proper temperature is reached it should be held an hour or so, if possible, to allow the butterfat to become evenly cooled.

TYPE OF CHURN.

Next comes the churning. The barrel type of churn is inexpensive, easy to operate, convenient, sanitary, and easy to keep in proper condition. Avoid patent churns with mechanical devices inside of them, as they are difficult to clean properly and they injure the body of the butter.

SCALDING THE CHURN AND UTENSILS.

View.

- 21 While the cream is waiting, scalding water should be added to the churn to cleanse it thoroughly and also to swell the pores of the wood and thus prevent the cream being absorbed. The lid should be placed on the churn and the churn given a few
- 22 turns. The lid should then be removed and the water drawn
- 23 out. Cold water is now added to cool the churn to prevent
- 24 raising the temperature of the cream when it is poured into the churn. The churn is given a few revolutions and the water is
- 25 drawn off as before. At this time the printer and paddles or
- 26 ladles should be scalded and placed in cold water to swell the pores of the wood and prevent the butter from sticking.

- The churn is now ready for the cream, which should be
- 27 poured through a coarse strainer to remove any lumps of cream or any of the hard white specks which are formed by the drying of the cream to the sides of the can.

. COLORING THE BUTTER.

- The natural color of butter when cows are fed on grass (nature's feed) is a soft straw yellow; this color is not so high when the cows are fed on dry feed, and when grass or other green feed is not available a harmless vegetable color is added to the cream as soon as it is placed in the churn. About *ten*
- 28 drops of coloring matter to every pound of butter will produce the desired color. Butter color can be obtained through local drug stores or dealers in dairy supplies.

CHURNING.

- 29 After churning has been in progress two or three minutes, gas forms in the churn and must be let out by removing the
- 30 cork. This should be done every few minutes until gas ceases to form. After churning has been in progress 15 or 20 minutes, very small mealy granules begin to form and the cream takes
- 31 on a thick, gummy consistency, which is termed "breaking." At this point the cream begins to break off from the glass in the lid of the churn. From this on the churning must be cautiously done. After every four or five revolutions the lid should be removed and the size of the granules of butter observed. When
- 32 they have reached the size of large wheat kernels the operation is complete, and the glass in the churn lid appears clear, showing that the butter granules slide completely off it during the revolutions of the churn. From the first revolution of the churn to this point should require about 25 or 30 minutes' revolving of the churn. If a longer time is required, the temperature of the next cream churned should be raised a few degrees.

Remember that when the churning is complete the granules of butter should be about the size of large wheat kernels, and the temperature of churning should be such that they will appear in 25 or 30 minutes. If the cream is too warm the butter will be in a coherent, soft mass like pound-cake batter. Good butter can not be made in less than 25 to 30 minutes. Do not be misled by arguments for 7-minute churns.

View.

After the stage of granules the size of large wheat kernels has been reached, remove the lid from the churn and drain the buttermilk off through a strainer to catch any small particles of butter which may run through.

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WASHING THE BUTTER.

Buttermilk is washed out of the butter and not worked out. When in the granular stage this washing is easily done, as water poured into the churn settles through the grains and washes each one just as is done when water is poured over a pan of rice or peas. The temperature of the water should be two or three degrees colder than the buttermilk which was drawn off, and the quantity added should be about the same as that of buttermilk. Before the water is poured into the churn its temperature should be ascertained by means of a thermometer. When the water is added the lid should be put on and the churn given two or three revolutions, so as to turn the butter in the water. The water is then drawn off through the same strainer used for the buttermilk. The same quantity of water, at the same temperature, is again added, and the washing operation is repeated until the water drawn from the churn shows no color of buttermilk. In addition to removing buttermilk the wash water has the effect of hardening the butter.

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SALTING AND WORKING THE BUTTER.

After the washing in the churn has been finished the butter-worker is scalded and cooled with cold water to swell the pores of the wood and prevent the butter from sticking. The churn is then drawn near the worker and the butter granules are taken from the churn with a paddle and ladle and placed on the worker. The hands should never touch the butter, as their warmth melts the fat, and if they are not clean such handling is insanitary.

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The butter is salted on the worker. Fine, clean salt in the proportion of 1 ounce to the pound of butter should be sprinkled uniformly over the butter. More or less salt may be used as the taste of the consumer may prefer.

41

View.

- 42 Working the butter should be done by pressing the pile of granules with the lever until the butter is in a flat mass about 1 inch thick. This should then be folded over upon itself and the flattening process repeated, the butter being pressed carefully in order to avoid making it greasy. It should be worked in this way until the salt is evenly distributed throughout the mass. The working of butter distributes the salt and expels the excess moisture. The edges of the butter when broken or
- 43 pulled apart should have a granular appearance similar to broken cast steel or a broken half-baked potato. Properly worked butter retains its granular form at all times. Too much working or working the butter when too soft destroys the grain, and the edges when broken or pulled apart have a slightly stringy appearance, like chewing gum pulled apart.

PRINTING AND WRAPPING.

- 44 With the working complete the operator removes the printer from the bucket of cold water, grasps it with both hands
- 45 and presses it repeatedly on the mass of butter until it is packed full. The butter at the bottom of the mold is then cut off smooth with the paddle and the print is pushed out
- 46 on a sheet of parchment butter-wrapping paper and neatly
- 47 wrapped. The square mold is used because square prints can be wrapped easily and neatly and because such print has become standard on the market. Good square molds can be purchased from local hardware stores or dealers in dairy supplies for from \$1.25 to \$5. Only regular parchment paper made for the purpose should be used for wrapping butter. It can be obtained from firms handling dairy supplies. The ordinary waxed paper commonly used for wrapping lunches should not be used for wrapping butter, as it tears easily and sticks to the butter.

- 48 The placing of the wrapped print of butter in pasteboard boxes or cartons protects the butter from finger prints, dust, and dirt. Paraffined cartons are preferable because they do not absorb water and because they form a stronger and tighter package. The trade-mark or maker's name on the carton serves as an advertisement. Cartons bearing any desired design or printing can be obtained at small cost from firms handling dairy supplies.

WASHING THE CHURN.

In washing the churn, it should first be rinsed with lukewarm or cold water and then scrubbed with a fiber brush, cleansing powder, and hot water, then scalded, and set in a

clean, sunny place to drain and dry. In washing the churning utensils a fiber brush is much more effective than the ordinary dishrag. The brushes can be obtained at small cost from hardware stores or from dealers in dairy supplies. Some washing powder, such as sal soda, is much better for cleansing churns than soaps or soap powders.

View.

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COMPARISON OF BUTTER MADE BY THE TWO METHODS.

The appearance of the package of butter determines its selling price to a considerable extent, and every effort should be made to have it as neat, attractive, and convenient to handle as possible. The square print neatly wrapped shows at a glance its advantage over the semiround print which is exposed to flies, dust, and other contaminating things. Even if the semiround print is wrapped in parchment paper it is impossible for it to make an attractive appearance. Compare such a print with a pound of butter wrapped and placed in a carton. If you were a purchaser, which would you prefer?

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APPENDIX.

LANTERN SLIDES.

No. of
view.

- 5194-C 1. Cream rising on milk in shallow pans, and churning apparatus.
- 5195-C 2. Scalding the churning utensils.
- 5196-C 3. Rinsing the churn.
- 5197-C 4. Breaking the cream from the side of the pan.
- 5198-C 5. Licking cream from the finger.
- 5199-C 6. Pouring milk into the churn.
- 5200-C 7. Scraping the "cream" from the pan.
- 5201-C 8. Beginning to churn.
- 5202-C 9. Seeing whether the butter is coming.
- 5203-C 10. Licking "cream" taken from the churning stick.
- 5204-C 11. Adding hot water to the churn.
- 5205-C 12. "The butter has come."
- 5206-C 13. Removing butter from the churn with the hand.
- 5207-C 14. Pouring water on the butter for washing.
- 5208-C 15. Draining water off the butter.
- 5209-C 16. Salting the butter.
- 5210-C 17. Working the butter.
- 5211-C 18. The plate of butter made.
- 5212-C 19. Washing the churning apparatus.
- 5213-C 20. Stirring and taking the temperature of the cream.
- 5214-C 21. Scalding the churn.
- 5215-C 22. Revolving the hot water in the churn.
- 5216-C 23. Drawing off the hot water.
- 5217-C 24. Pouring cold water into the churn.
- 5218-C 25. Revolving the cold water in the churn.
- 5219-C 26. Drawing off the cold water.
- 5220-C 27. Straining cream into the churn.
- 5221-C 28. Adding color to the cream.
- 5222-C 29. Beginning to churn.
- 5223-C 30. Letting the gas out of the churn.
- 5224-C 31. The breaking point of the cream.
- 5225-C 32. Churning operation complete.
- 5226-C 33. Drawing the buttermilk.
- 5227-C 34. Taking the temperature of wash water.
- 5228-C 35. Adding wash water.
- 5229-C 36. Revolving the butter in the wash water.
- 5230-C 37. Drawing the wash water.
- 5231-C 38. Drawing the second wash water.
- 5232-C 39. Scalding the butter worker.
- 5233-C 40. Removing the butter from the churn.
- 5234-C 41. Salting the butter.

No of
view.

- 5233-C 42. Working the butter.
 5234-C 43. Showing the grain of the worked butter.
 5235-C 44. Printing the butter.
 5236-C 45. Cutting the rough edge of butter from the mold.
 5237-C 46. Placing the butter on wrapping paper.
 5238-C 47. Wrapping the butter.
 5239-C 48. Placing the wrapped print in a carton.
 5240-C 49. Washing the churn with powder and brush.
 5241-C 50. Comparing the square print with the plate of butter.
 5242-C 51. Comparing the square print in a carton with a round print wrapped in parchment paper.

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